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Recycling can release huge quantities of microplastics, study finds

Scientists find high levels of microplastics in wastewater from unnamed UK plant – and in air surrounding facility

Karen McVeigh

Wed 24 May 2023 03.25 AEST

Researchers found the level of microplastics released in the water amounted to 13% of the plastic processed. Photograph: Maxshoto/Alamy

Recycling has been promoted by the plastics industry as a key solution to the growing problem of plastic waste. But a study has found recycling itself could be releasing huge quantities of microplastics.

An international team of scientists sampled wastewater from a state-of-the-art recycling plant at an undisclosed location in the UK. They found that the microplastics released in the water amounted to 13% of the plastic processed.

The facility could be releasing up to 75bn plastic particles in each cubic metre of wastewater, they estimated.

> *It's scary because recycling has been designed in order to reduce the problem and to protect the environment. This is a huge problem we're creating.*
> **Erina Brown, University of Strathclyde**

Science of The Total Environment
Volume 902, 1 December 2023, 166090

Evaluating the generation of microplastics from an unlikely source: The unintentional consequence of the current plastic recycling process

Michael J. Stapleton [a], Ashley J. Ansari [a], Aziz Ahmed [b], Faisal I. Hai [a]

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https://doi.org/10.1016/j.scitotenv.2023.166090

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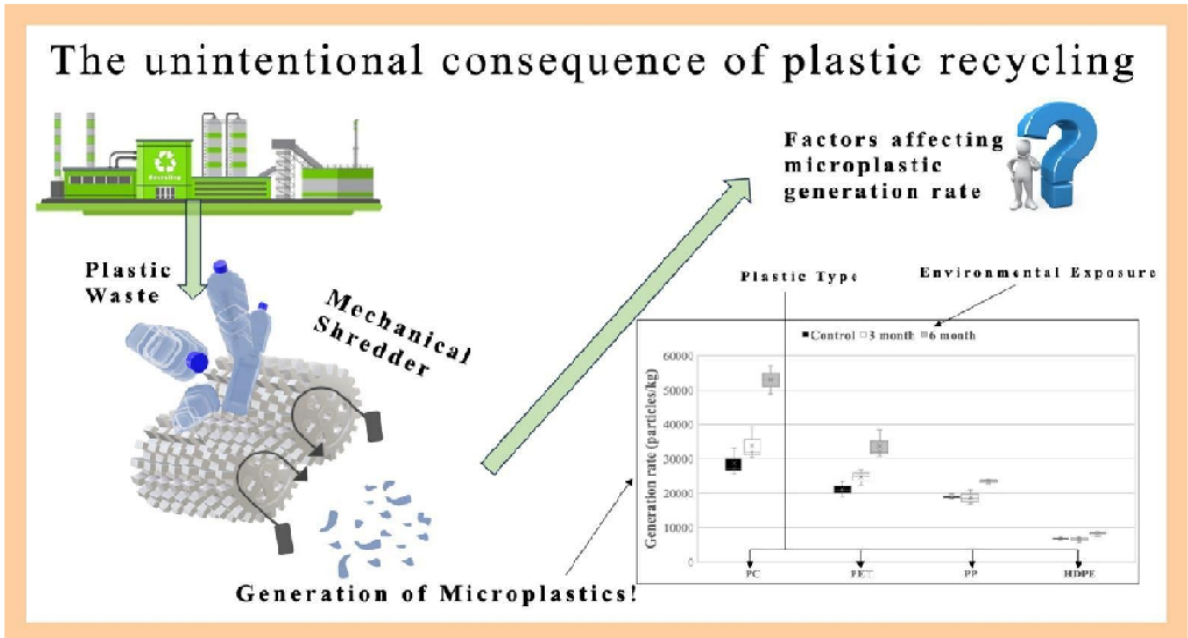

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And the recycling greenwash

By 2050, the amount of plastic consumed in Australia will more than double. Despite government policies aimed at creating a 'circular economy', just 14% of plastic waste is kept out of landfill. Recycling plastic is inefficient, expensive and hazardous, and there is little demand for recycled plastics. Policies to cap or phase down the use of plastics, including a plastics tax, are needed.

Discussion paper

Lilia Anderson
Nina Gbor

January 2024

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An additional problem is that plastic recycling creates pollution through the shedding of microplastics. Recycling produces microplastics, which end up in the environment through wastewater or sludge from processing plants.[102] Research has found that large quantities of microplastics are generated in the recycling process, and that, as a result, recycling centres are likely to be "a major point source of microplastics pollution".[103]

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Pollution

Microplastics are infiltrating brain tissue, studies show: 'There's nowhere left untouched'

Douglas Main

Wed 21 Aug 2024 23.00 AEST

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A blue pen next to a piece of microplastic found in Tacoma, Washington, on 13 May 2010. Photograph: Ted S. Warren/AP

Twenty-four brain samples collected in early 2024 measured on average about 0.5% plastic by weight

A growing body of scientific evidence shows that microplastics are accumulating in critical human organs, including the brain, leading researchers to call for more urgent actions to rein in plastic pollution.

Studies have detected tiny shards and specks of plastics in human lungs, placentas, reproductive organs, livers, kidneys, knee and elbow joints, blood vessels and bone marrow.

Given the research findings, "it is now imperative to declare a global emergency" to deal with plastic pollution, said Sedat Gündoğdu, who studies microplastics at Cukurova University in Turkey.

> *There's much more plastic in our brains than I ever would have imagined or been comfortable with*
> Matthew Campen, University of New Mexico

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Res Sq [Preprint]. 2024 May 6:rs.3.rs-4345687. [Version 1] doi: 10.21203/rs.3.rs-4345687/v1

Bioaccumulation of Microplastics in Decedent Human Brains Assessed by Pyrolysis Gas Chromatography-Mass Spectrometry

Matthew Campen [1], Alexander Nihart [2], Marcus Garcia [3], Rui Liu [4], Marian Olewine [5], Eliseo Castillo [6], Barry Bleske [7], Justin Scott [8], Tamara Howard [9], Jorge Gonzalez-Estrella [10], Natalie Adolphi [11], Daniel Gallego [12], Eliane El Hayek [13]

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PMCID: PMC11100893 PMID: 38765967

Figure 2.